## Claims

[c1] 1. A method of producing a transgenic wheat plant comprising: providing an explant presenting a plurality of meristems; culturing said explant in a first multiple bud inducing media suitable for inducing production of a plurality of buds from at least one of said meristems; introducing exogenous DNA into at least one of said plurality of buds; removing said plurality of buds from said first media and transferring said plurality of buds to a second media suitable for induction of elongation of said buds into shoots: harvesting and transferring said shoots to a culture medium that promotes root development; and

culturing said transferred shoots to produce plants.

- 2. The method of claim 1 wherein said multiple bud inducing media comprises a cytokinin and an auxin.
- 3. The method of claim 2 wherein said cytokinin is thidiazuron .
- 4. The method of claim 2 wherein the concentration of said cytokinin is between about 2.0mg/L and 7.5mg/L.
- 5. The method of claim 2 wherein said cytokinin is thidiazuron and said auxin is selected from the group consisting of 2,4-D and picloram.
- [c6] 6. The method of claim 5 wherein the concentration of thidiazuron is between about 2.0mg/L and 7.5mg/L and the concentration of auxin is between about 0.5mg/L and 2.0mg/L.
- [c7] 7. The method of claim 1 wherein said plurality of meristems contains the scutellar node.
- 8. The method of claim 1 wherein said explant is a wheat mesocotyl explant. [c8]
- [c9] 9. The method of claim 1 wherein said exogenous DNA comprises a nucleic acid encoding a protein capable of conferring resistance to a selection agent.
- [c10]10. The method of claim 9 further comprising a step of selecting for plants

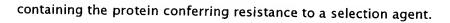
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[c2]

[c3]

[c4]

[c5]



- [c11] 11. The method of claim 1 wherein said exogenous DNA is introduced via biolistic particle bombardment.
- [c12] 12. The method of claim 1 wherein said exogenous DNA is introduced via Agrobacterium-mediated transformation.
- [c13] 13. A method of producing a transgenic wheat plant comprising: providing a wheat mesocotyl explant presenting a plurality of meristems; culturing said wheat mesocotyl explant on a first media, comprising thidiazuron at a concentration of between about 2.0mg/L and 7.5mg/L, and 2,4-D at a concentration of about 0.5mg/L and 2.0mg/L, to induce the production of a plurality of buds from at least one of said plurality of meristems; introducing exogenous DNA into at least one of the cells of said plurality of buds; removing said plurality of buds from said first media and transferring said plurality of buds to a second media suitable for induction of elongation of said

culturing said shoots to produce plants.

buds into shoots:

- [c14] 14. The method of claim 13 wherein said exogenous DNA is introduced via Agrobacterium – mediated transformation.
- [c15] 15.The method of claim 13 wherein said exogenous DNA is introduced via biolistic particle bombardment.
- [c16] 16.The method of claim 13 further comprising a step of selecting for plants containing the exogenous DNA.